

REMARKS

By this amendment, claims 8-14 and 18-20 are canceled, claims 21 and 22 have been added, Figure 5 of the drawings has been corrected, and arguments are made below to place this application in condition for allowance. Currently, claims 1-7, 15-17, 21, and 22 are before the Examiner for consideration on their merits.

First, Applicants acknowledge the election of the Group I invention, claims 1-7 and 15-17.

Second and by separate letter to the draftsman, Figure 5 is corrected to reflect its representation of the prior art and renumbered as Figure 6 to be consistent with the preliminary amendment previously filed. Also, original Figure 6 is changed to Figure 5 to correspond with the description. Accordingly, the objection raised in the Office Action should be withdrawn.

Third and responsive to the notation of the instances of a lack of antecedent basis in claims 3, 5, 6 and 15, these claims have been duly amended to rectify this problem.

Fourth and in response to the Examiner query about the various set values described in the claims, amendments have been made to clarify what specific type of set values are being referenced. Specifically, values have been recited for the scale thickness, width and traveling speed for determining the total amount of acid solution to be supplied for claims 1 and 5. The values of claim 2 have been clarified as preset distribution ratio values. Lastly, the reference to "pickling solution" has been changed to "acid solution." By these amendments, many of the issues raised in the rejection of claims 1-7 and 15-17 under 35 USC §112, second paragraph have been overcome and should be withdrawn.

Claims 1 and 5 have also been amended to describe the method in active terminology. It is respectfully submitted that the claims are not indefinite under this statute. As the Examiner knows, definiteness is measured from the standpoint of one of skill in the art when

viewing the specification and that which is shown in the prior art. *In re Moore*, 169 USPQ 236, (CCPA 1971). Besides the issues addressed above, the Examiner makes a number of other allegations of indefiniteness, each of which addressed below by their respective headings.

Distribution Ratio

The Examiner questions the meaning of distribution ratio, although no reason is given as to why this term is allegedly indefinite. In fact, when reading the specification from the standpoint of one skilled in the art, this term is not indefinite. Page 13, lines 13-18 of the specification clearly explains that the distribution ratio or distribution coefficient is a measure of the acid distributed to at least two tanks, exemplified as the third and fourth tanks in the cited passage of the specification. Page 17, lines 13-15 goes on to characterize the distribution ratio as that of the acid amount of the third tank as compared to the total acid supply. Page 20, lines 10-14 described set values of the distribution ratio for various speeds of operation.

Turning to claims 1 and 5 now, the language recites a distribution ratio of the acid supply solution for the at least two pickling tanks. These claims, as amended, explain that an acid solution is supplied to the at least two pickling tanks. The later-recited distribution ratio merely defines the ratio of acid supply between the two tanks as part of the control step. It is respectfully contended that the meaning of this language is easily understood by one of skill in the art, and claim 1 and other claims referencing the distribution ratio are not per se indefinite. Thus, the rejection in this regard should be withdrawn.

Amount of Acid Solution

The Examiner also questions where the acid solution is being supplied to. In responding to this inquiry, reference is made to page 12, line 10, wherein the total amount of acid solution is defined. As explained in the specification, this is the amount of acid

consumed during the pickling process. Once the total amount is determined, it is then distributed between the at least two tanks as described in claim 1. The plain language of claim 1 makes it clear that the acid solution is supplied to the at least two tanks in the distribution ratio as defined by the pickling pattern and traveling speed. This aspect of claim 1 is also not indefinite.

Pickling Pattern

The Examiner also questions the meaning of “pickling pattern.” The Examiner’s attention is directed to Figures 3 and 4 and their explanation on pages 12 and 13 of the specification. A reading of this portion of the specification reveals the clear meaning of the “pickling pattern” term used in the claims. That is, In Figure 3, different pickling patterns are shown based on the same traveling speed. The patterns in Figure 3 are representative of the pickling rate with respect to a starting point. As explained in the specification, for a thicker scale at the same traveling speed, the completion of pickling shifts to the downstream side, i.e., a larger pickling distance, and pattern 3 results. For thinner scale, the pickling distance is less for the same 60% descaling rate, thus obtaining pattern 1 or pattern 2. If the scale thickness is the same but the traveling speed varies, the position of completion of pickling varies with the pickling speed or weight loss per unit time. The faster the pickling speed, the more descaling occurs at less distance, thus giving pattern 1. The slower the pickling speed, the less scaling occurs for the same distance, or more distance is required to achieve the same descaling rate, thus pattern 3.

What claim 1 says is that the distribution ratio is determined based on a pickling pattern for the steel, or based on a particular descaling rate for a given pickling distance. There is nothing inherently confusing or indefinite regarding this claim language, and Applicants strenuously assert that this claim language does not run afoul of 35 USC §112, second paragraph.

Scale Thickness

Scale thickness is the thickness of scale formed on a plate. According to the invention, the scale thickness can be classified into groups, with an example shown as five groups, see page 20, line 2. The scale thickness is merely one of the values that is used to provide the feedforward control of the invention, see for example, page 11, lines 18-25, wherein the scale thickness set value is employed as part of the calculation of the acid supply.

Based on the explanations set forth above, and the amendments to the claims, the rejection based on 35 USC §112 is effectively overcome and should be withdrawn.

In response to the prior art rejection, Applicants respectfully traverse the rejection. In review, claims 1, 2, 4-7, 16, and 17 stand rejected under 35 USC §102(b) based on United States Patent No. 6,096,137 to Mabuchi et al. (Mabuchi). In making this rejection, the Examiner contends that Mabuchi teaches adjusting the concentration of the acid supplied to the pickling operation. Addressing the distribution ratio specifically, the Examiner alleges that the concentration distribution of the acid is taught, referencing col. 2, lines 39-65.

Claims 3 and 15 are rejected under 35 USC §103(a) based on the Mabuchi when combined with United States Patent No. 4,872,245 to Kawasaki et al. (Kawasaki). In this rejection, the Examiner admits that Mabuchi does not teach the use of the scale thickness as recited in claims 3 and 15. The Examiner cites Kawasaki to allege that it is known to use the grade and coiling temperature to establish initial pickling conditions, and therefore, it would be obvious to do so in the method of Mabuchi.

The rejection based on 35 USC §102(b) fails for the simple reason that Mabuchi does not teach the claim 1 steps of determining the total amount of acid required, determining a distribution ratio for control of the supply of the acid to the at least two pickling tanks. Mabuchi is no stranger to the inventors since it is discussed in the specification on page 4, line 12 et seq. According to Mabuchi, an amount of the acid supply is determined for each of

the pickling tanks. Important to note is the fact that this amount is determined independently for each tank. There is absolutely no mention of a distribution ratio of acid amounts for at least two of the tanks of Mabuchi. Moreover, there is no mention of determining a total amount of the acid supply prior to onset of the pickling operation. Lacking the steps of determining a distribution ratio and the total amount of the acid supply, Mabuchi cannot establish a *prima facie* case of anticipation against claims 1 and 5, and the rejection must be withdrawn as applied to these claims.

Kawasaki does not supply the deficiencies in Mabuchi in this regard. So, even if Kawasaki were combined with Mabuchi, the invention of claims 1 and 5 would still not be taught.

Moreover, there is no other basis in the applied prior art to allege that Mabuchi, alone or with Kawasaki could be modified so as to include the invention as defined in claims 1 and 5. Any such allegation can only be the hindsight reconstruction of the prior art in light of Applicants' disclosure, a practice forbidden under the current standards of patent law. Put another way, the Examiner has no reason to allege that the cited prior art establishes a *prima facie* case of obviousness.

In fact, Mabuchi must conduct a series of complicated calculations for each of the pickling tanks to which the acid solution is supplied. In contrast and according to the invention, a distribution ratio is determined, and the total amount of acid to be supplied is determined based on scale thickness, width and traveling speed values. Then, the total amount is merely divided amongst the at least two tanks based on the distribution ratio.

The Examiner's attention is also directed page 20, lines 25+ wherein it is shown that the feedforward control of the invention produces a significant improvement in acid concentration variation. This improvement is further evidence of the unobvious nature of the invention and deficiencies in the cited prior art.

Applicants also contend that dependent claims 2, 4, 6, and 16 are separately patentable over Mabuchi for the simple reason that Mabuchi does not teach a distribution ratio, and thus cannot teach the limitations of these claims as they relate to this ratio.

Lastly, it is submitted that claims 21 and 22 are also patentably distinguishable over the applied prior art. These claims are in Jepson format to define an improvement in the method of making steel plates, such method employing hot working, and scale removal by pickling. Since it has been demonstrated above that claims 1 and 5 are patentable over the applied prior art, claims 21 and 22 are also in condition for allowance. As an aside, claims 21 and 22 are supported by the specification since it mentions making steel plate by hot working in a number of places, and that the pickling process of the invention is designed to remove the scale from such a method. Therefore, new claims 21 and 22 do not introduce new matter into the application.

In summary, it is respectfully contended that Mabuchi cannot establish a *prima facie* case of anticipation against claims 1, 2, 4, 5, 6, and 16. In addition, Mabuchi, with or without Kawasaki, fails to establish a *prima facie* case of obviousness against these claims. Since claims 1 and 5 are patentable over the applied prior art, their respective dependent claims 3, 7 and 15 are also in condition for allowance.

Accordingly, the Examiner is respectfully requested to examine this application in light of this amendment and promptly pass all pending claims onto issuance.

If the Examiner believes that an interview with Applicants' attorney would be helpful in expediting prosecution of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

The above constitutes a complete response to all issues raised in the Office Action dated August 11, 2004.

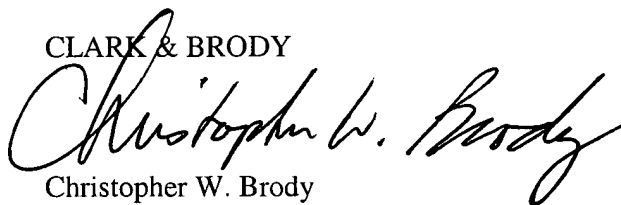
Again, reconsideration and allowance of this application is respectfully requested.

Serial No.: 10/691,667

A petition for a one month extension of time is hereby made and a check in the amount of \$110.00 is enclosed to cover the cost of the petition fee. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,

CLARK & BRODY

A handwritten signature in black ink, reading "Christopher W. Brody". The signature is written in a cursive style with a large, stylized "C" at the beginning.

Christopher W. Brody
Reg. No. 33,613

1750 K Street, NW, Suite 600
Washington, DC 20006
Telephone: 202-835-1111
Docket No.: 12014-0022
Date: December 8, 2004